## CLAIMS

- 1. Apparatus for injection molding articles of plastics material,
- 2 characterized in that it comprises: molds (2a) and countermolds (2b) forming
- 3 a plurality of molding units (3), molding cavities (7) being defined inside said
- 4 molds and countermolds; at least one injection assembly (8) and at least one
- 5 auxiliary assembly (9) adapted to respectively supply melted plastics material
- 6 and pressurized fluid into said molding cavities (7); said molding units (3)
- 7 being movable with respect to said injection assembly (8) and auxiliary
- 8 assembly (9); and removable connecting devices (12, 8a), and check means
- 9 (20) adapted to avoid counter flows from said molding cavities (7), being
- 10 provided between said molding units (3) and said injection assembly (8) and
- 11 said auxiliary assembly (9).
  - 2. Apparatus according to Claim 1, wherein feeding ducts (10) extend
  - 2 between said auxiliary assembly (9) and said molding cavity (7), said feeding
  - 3 ducts (10) comprising initial segments (11a) engaged with said auxiliary
- 4 assembly (9) and final segments (11b) engaged with said molding units (3)
- 5 and removably connected to said initial segments (11a), and wherein said
- 6 check means (20) comprises shut-off devices (20a) connected to said final
- 7 segments (11b) and adapted to prevent said pressurized fluid from flowing
- 8 back to said molding cavities (7).
- 3. Apparatus according to Claim 2, wherein said shut-off devices (20a)
- 2 comprise at least one stop valve (21) adapted to prevent the pressurized fluid
- 3 from flowing back from said molding cavity (7), and at least one manually
- 4 operated discharge valve (22) for said fluid.
- 4. Apparatus according to Claim 3, wherein said final segments (11b)

- 2 comprise a discharge portion (23) connected to said discharge valve (22), and
- 3 wherein said discharge valve (22) is an electric valve.
- 5. Apparatus according to Claim 2, wherein said removable connecting
- 2 devices comprise a quick-connection device (12) inserted between said initial
- 3 segments (11a) and said final segments (11b).
- 6. Apparatus according to Claim 1, wherein supplying channels (18)
- 2 extends between said injection assembly (8) and molding cavity (7), and
- 3 wherein said removable connecting devices comprise, in said supplying
- 4 channels (18), at least one movable injector (8a) located between said
- 5 injection assembly (8) and said molding units (3).
- 7. Apparatus according to Claim 6, wherein said check means (20) in said
- 2 supplying channels (18) comprises one-way elements (20b) for the plastics
- 3 materials.

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- 8. Apparatus according to Claim 7, wherein said one-way elements
- 2 (20b) are formed by at least one conical channel (24) made in said molding
- 3 units (3).
- 9. Apparatus according to Claim 7, wherein said one-way elements (20b)
- 2 are formed by at least one stop valve.
- 1 10. Apparatus according to Claim 1, wherein said injection assembly (8)
- 2 and said auxiliary assembly (9) are substantially stationary, and wherein said
- 3 molding units (3) are movable along a substantially closed-loop path (25).
- 1 11. Apparatus according to Claim 10, wherein working stations are
- 2 provided along said path (25), said working stations comprising plastics
- 3 material injection and pressurized fluid supplying (26), cooling (27, 28, 29),
- 4 pressurized fluid discharging and demolding (30) stations.

- 1 12. Process for injection molding articles of plastics materials,
- 2 characterized in that it comprises: at least one step for injecting melted
- 3 plastics material in molding cavities made in molding units, at least one step
- 4 for introducing a pressurized fluid inside said plastics material, steps for
- 5 cooling and hardening said plastics materials inside said cavities, with said
- 6 pressurized fluid, and final steps comprising the demolding of the molded
- 7 articles, the process comprising momentarily keeping said plastics material
- 8 and said pressurized fluid inside said molding units, moving said molding
- 9 units, and carrying out some of said steps in reciprocally distinct positions in
- 10 order to contemporaneously carry out some of them.